2.1 Network Configuration

After logging in you can set up the Network configuration in two steps:

1. Assign an IP address to each NIC on your server
2. Assign a default gateway and one or two DNSes

2.1.1 Assign an IP address to each NIC

To achieve this first goal you select the **Interfaces** in the section **SERVER CONFIGURATION**, from the main menu.

figure 1. the interface(s) detected

In the page body an interface such the one in fig. 1 shows you all the NIC actually detected. Click on the NIC's name (in our example it's "ens192").

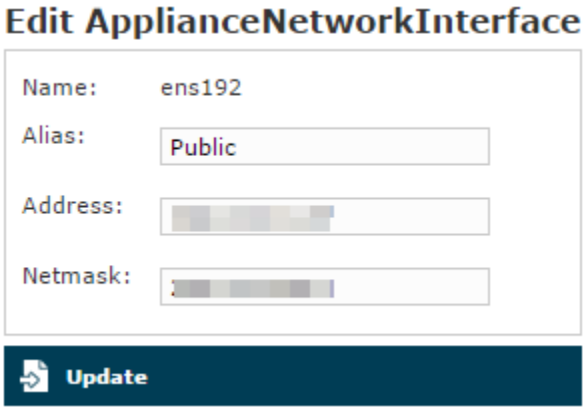


figure 2. edit the nic configuration

The page body will change as in fig. 2.

Configure the ens192 interface with the following parameters:

- **IP address**
- **Network Mask**

When you're done you can click the '**Update**' button in the form's bottom. This applies the new configuration as you can see it in the page body:

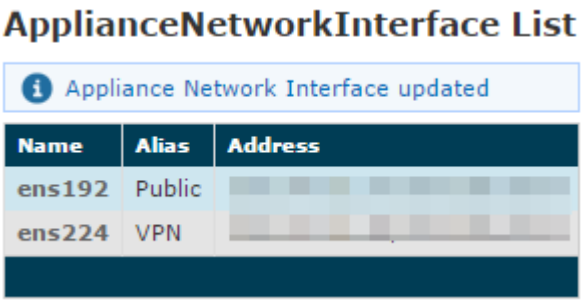


figure 3. The NIC configuration is changed

Pay attention to change your workstation IP accordingly to the new server's NIC configuration: else you can lose the access to the server and to the server's Web console.

2.1.2 Assign a default gateway and DNS(es)

To complete the network configuration you should probably setup your default gateway and almost one DNS server as well. Such configurations are possible by **Network Configuration** in the section **SERVER CONFIGURATION**, from the main menu.

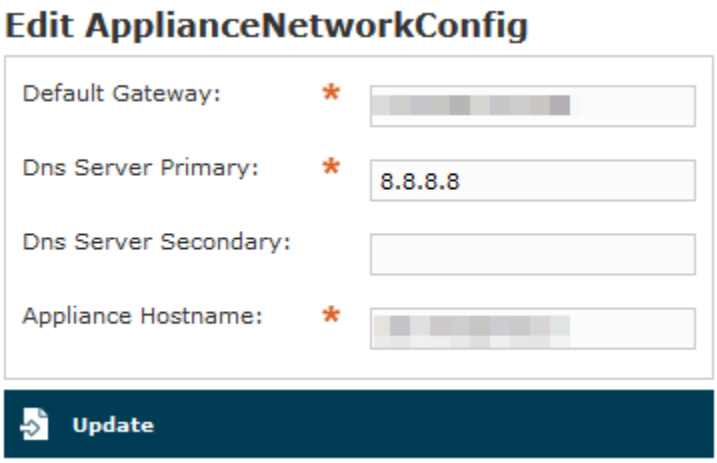


figure 4. edit network configuration

The page body will show the "Edit Appliance Network Config" as in figure 4. edit network configuration
Configure the interface with the following parameters:

- **Default Gateway (mandatory to reach out the Internet)**
- **Dns Server Primary (mandatory to resolve domains and hostnames into IP addresses)**
- **Dns Server Secondary (optional)**
- **Appliance hostname**

When you're done you can click the '**Update**' button in the form's bottom. This applies the new configuration as you can see it in the page body:

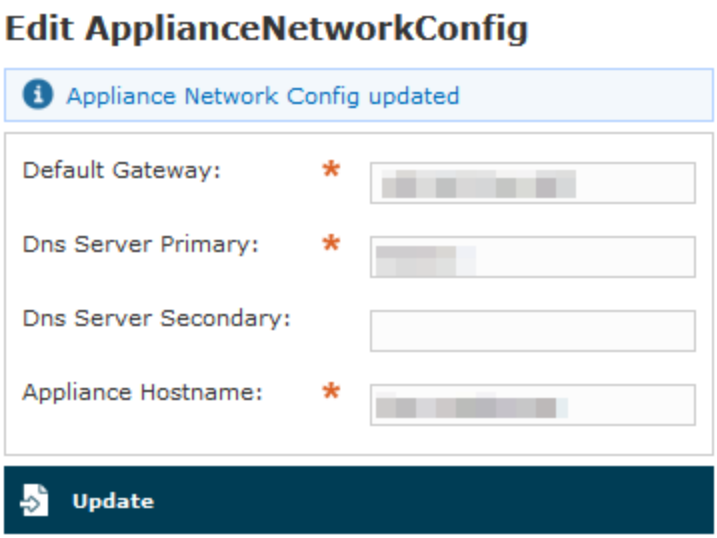


figure 5. network configuration updated

> The gateway configuration can break up the communication between the server and your workstation. Take care to check both before applying.

2.1.3 Manual Network configuration

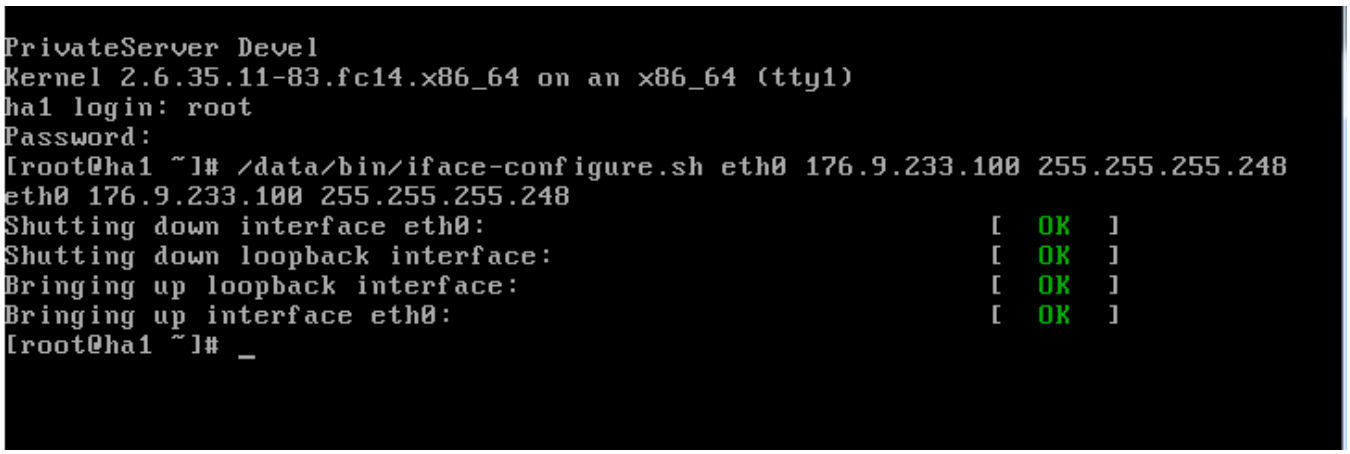
Both the below procedures are possible via console access, using the SSH internal server. Gain a privilege access to the console using the "root" user.

2.1.3.1 Assign an IP address to each NIC

To manually assign an IP address to a specified NIC you should use the **iface-configure.sh** script located in **/data/bin/**. It accept the card name, the IP address to assign and its netmask as in the following example:

```
/data/bin/iface-configure.sh eth0 78.47.213.169 255.255.255.0
```

After you press the Enter key, the script configures and restarts the network configuration.



> Beware that you pass to the script the correct values, else you could cut yourself out of the server.
>
> To configure the NIC properly you **must** pass the three options specified above.

If called with no options, then the above script returns the actual NICs configuration.

2.1.3.2 Assign a default gateway and DNS(es)

To manually assign an IP address to a specified NIC you should use the **net-configure.sh** script located in **/data/bin/**. It accept the gateway IP address, two DNS addresses and hostname, as in the following example:

```
/data/bin/net-configure.sh 46.4.25.83 8.8.8.8 8.8.4.4 privateserver.local
```

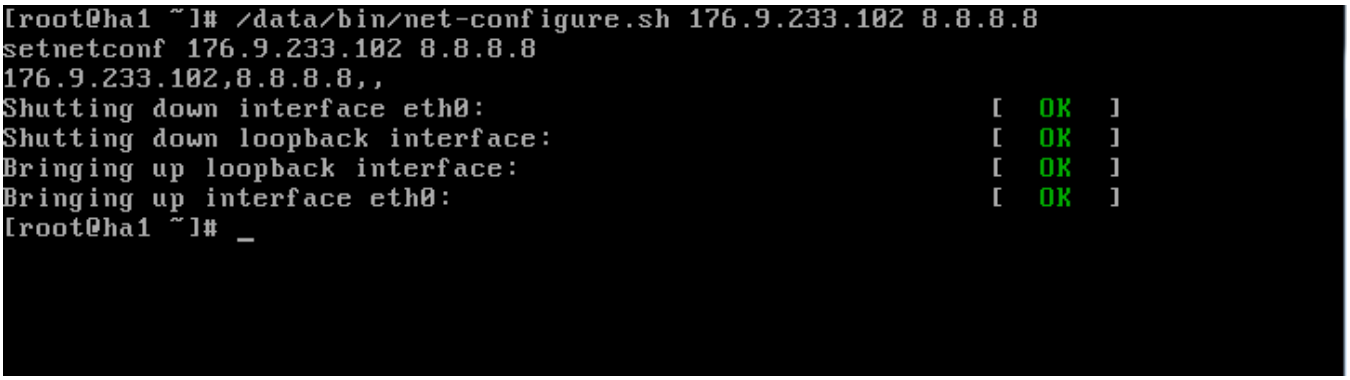
After you press the Enter key, the script configures and restarts the network configuration.

You can pass to the script just the gateway and the first DNS IP addresses. If secondary DNS is missing, pass the empty string ("") as parameters

Beware you passed the correct values to the script or else you could cut yourself out of the server.

To configure the NIC properly you **must** pass almost the gateway and the first DNS server IP.

If called with no options, then the script return the actual network configuration.



2.1.3.3 Restart Cluster Manager

After the script exits please restart the cluster manager (even if you are in "single server" deployment) using the following command:

```
pcs cluster stop --force

pcs cluster start
```

2.1.4 Configure static routes

The page body will show the "static route tab":

figure 6. static route tab

Configure the static network route with the following parameters:

- **Destination ip address (CIDR notation) or "default"**
- **Default gateway**
- **Choose Network Interface on which the traffic must be routed**

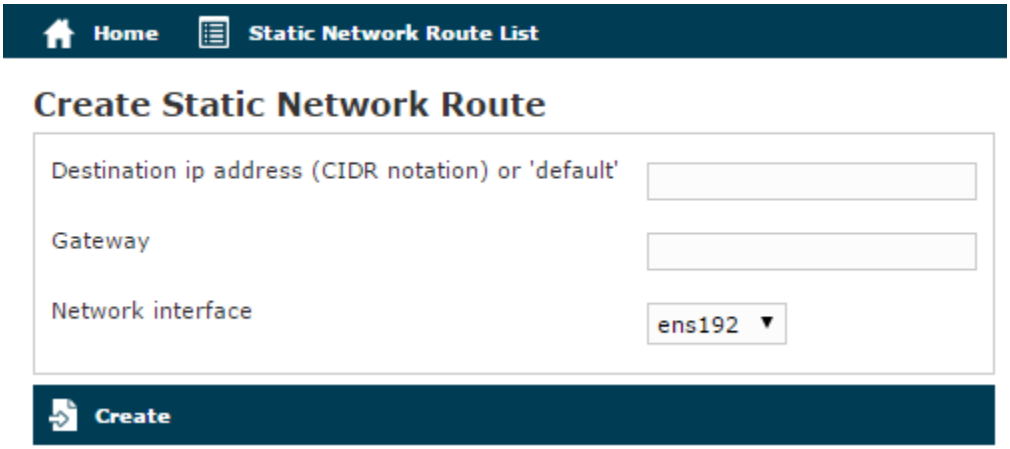


figure 7. static route create

After inserting all the parameters click on create and new static route will be created:

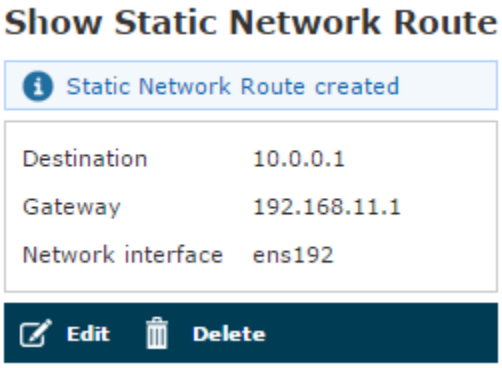


figure 8. static route created

and new static route is listed in Static Network Route List:

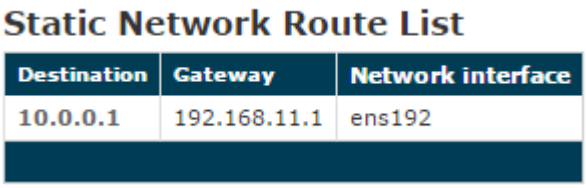


figure 9. static route list

To edit or delete a static route choose from Static Network Route List an entry to be edited or deleted:

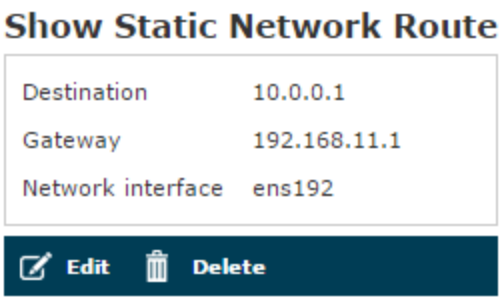


figure 10. static route edit delete

The static routes configuration is an advanced topic. It has to be done only if strictly necessary and can lead to serious communication issues if not perfectly understood.

The following lines are partially excerpted from the http://www.centos.org/docs/5/html/5.1/Deployment_Guide/s1-networkscripts-static-routes.html page. All rights granted.

Static route configuration is stored in a `/etc/sysconfig/network-scripts/route-`*`interface`* file. For example, static routes for the eth0 interface would be stored in the `/etc/sysconfig/network-scripts/route-eth0` file. The `route-`*`interface`* file has two formats: IP command arguments and network/netmask directives. We will refer just to the first case.

IP Command Arguments Format

Define a default gateway on the first line. This is only required if the default gateway you set above is not good for this NIC

`default` *`X.X.X.X`* `dev` *`interface`*

`X.X.X.X` is the IP address of the default gateway. The *`interface`* is the interface that is connected to, or can reach, the default gateway.

Define a static route. Each line is parsed as an individual route:

`X.X.X.X/X` `via` *`X.X.X.X`* `dev` *`interface`*

`X.X.X.X/X` is the network number and netmask for the static route. *`X.X.X.X`* and *`interface`* are the IP address and interface for the default gateway respectively. The *`X.X.X.X`* address does not have to be the default gateway IP address. In most cases, *`X.X.X.X`* will be an IP address in a different subnet, and *`interface`* will be the interface that is connected to, or can reach, that subnet. Add as many static routes as required.

The following is a sample `route-eth0` file using the IP command arguments format. The default gateway is 192.168.0.1, interface eth0. The two static routes are for the 10.10.10.0/24 and 172.16.1.0/24 networks:

```
default 192.168.0.1 dev eth0
10.10.10.0/24 via 192.168.0.1 dev eth0
172.16.1.0/24 via 192.168.0.1 dev eth0
```

Static routes should only be configured for other subnets. The above example is not necessary, since packets going to the 10.10.10.0/24 and 172.16.1.0/24 networks will use the default gateway anyway. Below is an example of setting static routes to a different subnet, on a machine in a 192.168.0.0/24 subnet. The example machine has an eth0 interface in the 192.168.0.0/24 subnet, and an eth1 interface (10.10.10.1) in the 10.10.10.0/24 subnet:

```
10.10.10.0/24 via 10.10.10.1 dev eth1
```

Duplicate Default Gateways

If the default gateway is already assigned from DHCP, the IP command arguments format can cause one of two errors during start-up, or when bringing up an interface from the down state using the `ifup` command: "RTNETLINK answers: File exists" or 'Error: either "to" is a duplicate, or "*`X.X.X.X`*" is a garbage.', where *`X.X.X.X`* is the gateway, or a different IP address. These errors can also occur if you have another route to another network using the default gateway. Both of these errors are safe to ignore.

2.2 Network Segregation